REMARKS

This Preliminary Amendment formally amends the Application to harmonize the Application format with U.S. Patent practice. Claims 1-15 (Amended Sheets) have been cancelled and replaced with new claims 16-34. The title and abstract have been replaced for formal reasons. The abstract has been reproduced on a separate sheet attached hereto as new page 13 of the Application. The specification has been amended to insert section titles therein. Marked-up copies of pages 7 and 10 of the specification are attached.

Claims 16-34 are now pending in the Application.

An early examination on the merits is earnestly solicited.

Respectfully submitted,

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DC2-DOCS1-367642

ABSTRACT OF THE DISCLOSURE

A sound-absorbing article which is one of a lining or a shaped element and which has a sound absorptive effect over a broad frequency range particularly useful in transportation vehicles when positioned proximate a reverberant wall, the article including at least one microperforated sheet absorber which has microperforations defined therein having at least one hole diameter ranging from 0.05 mm to 2 mm, which has at least one interhole distance ranging from 1 mm to 20 mm, and which has a proportion of hole area ranging from 0.2 to 4%, based on surface area of the at least one microperforated sheet absorber; and at least one absorber which is at least one of a foam absorber and a non-woven absorber and which is positioned at a preselected spatial distance from a reverberant wall.

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roof linings, pillar linings, door linings, passenger compartment linings, luggage shelves, rear shelves, heat shields and/or trunk linings.

BRIEF DESCRIPTION OF THE DRAWING

Figure 1 shows a transmission tunnel lining which comprises different hole sizes in the microperforated sheet absorber according to the present invention; Figure 2 shows a roof lining designed by means of the present invention, and Figures 3(a)-(c) show components having equal hole diameter and the same component as mirrored diagonal.

Thus, using the present invention, it is possible to provide lining or shape elements for means of transportation which not only have a microperforated sheet absorber at a distance from the reverberant wall, but in addition several microperforated sheet absorbers on top of one another, respectively arranged at a certain distance between them.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The sound-technological properties of the lining or shape elements in the vehicle field according to the invention are essentially determined by the number of microperforated sheet absorbers, the proportion of hole area, the interhole distances and the hole diameters.

Therefore, particularly preferred according to the present invention are lining or shape elements in the vehicle field which are characterized in that said microperforated sheet absorber has a proportion of hole area with microperforation of from 0.2 to 4%, especially from 0.3 to 2%, based on the surface area of the microperforated sheet absorber. Of course, it is possible to design them respectively with a different or the same proportion of hole area. The holes can be introduced into the microperforated sheet absorber with any desired geometry by methods per se known in the prior art, for example, by punching or laser irradiation.

If the proportion of hole area is chosen too low, a sound-absorbing effect does not exist, or not sufficiently so, while on the other hand, when the proportion of hole area is chosen too high, the sound-absorbing effect again decreases.

Preferably, the lining or shape elements in the vehicle field according to the invention comprise holes in a microperforated sheet absorber having one or more diameters within a range of from 0.05 mm to 2 mm, especially 0.01 mm to

MARKE-UP COPY

~~CLAIMS:~~

What is claimed is:

1. A lining or shape element for means of transportation, comprising at least one microperforated sheet absorber having a proportion of hole area of from 0.2 to 4%, wherein the holes of said microperforated sheet absorber for the microperforation have one or more diameters within a range of from 0.05 mm to 2 mm and one or more interhole distances within a range of from 1 mm to 20 mm, and at least one foam and/or non-woven absorber at a spatial distance from a reverberant wall.

2. The lining or shape element according to claim 1, characterized by comprising wheel housings, hoods, hood linings, engine encapsulations, heat transfer plates, vehicle shields, transmission tunnel linings, dashboards, vehicle seats, seat backs, armrests, steering wheels, carpetings, especially carpets, roof linings, pillar linings, door linings, passenger compartment linings, luggage shelves, rear shelves, heat shields and/or trunk linings.

3. The lining or shape element according to claim 1, characterized in that said microperforated sheet absorber has a proportion of hole area of from 0.3 to 2%, based on the surface area of the absorber.

4. The lining or shape element according to claim 1, characterized in that the holes of said microperforated sheet absorber for the microperforation have one or more diameters within a range of from 0.1 mm to 0.8 mm and one or more interhole distances within a range of from 1 mm to 3 mm.

5. The lining or shape element according to claim 1, characterized by including several microperforated sheet absorbers, especially having respectively different hole diameters per microperforated sheet absorber and respectively different interhole distances per microperforated sheet absorber.

6. The lining or shape element according to one or more of claims 1 to 5, characterized in that said mi roperforated sheet absorber has a proportion